

--37. An apparatus for suturing a tissue membrane, the apparatus comprising:

 a tubular body having a proximal portion and a distal portion, the distal portion extendable through an opening in the tissue membrane caused by a catheterization procedure;

 a needle advanceable in a distal direction along the tubular body and through the tissue membrane adjacent the opening in the tissue membrane; and

 a suture chamber defined in the proximal portion of the tubular body, the suture chamber holding a length of suture, wherein the needle carries at least a portion of the length of suture from the suture chamber through the tissue membrane.

AI

38. The apparatus of claim 37 further comprising a suture retrieval assembly at the distal portion of the tubular body and deployable to receive the suture after the tubular body is extended through the opening in the tissue membrane.

39. The apparatus of claim 37 wherein the suture is attached to the needle.

40. The apparatus of claim 37 wherein the needle has an eyelet near its distal tip, the eyelet carrying a doubled-back length of suture.

41. The apparatus of claim 37 wherein the needle is a hollow needle that carries the suture through the center of the hollow needle.

42. The apparatus of claim 37 further comprising a hemostasis seal member on the distal portion of the tubular member, the seal member being openable against outflow of fluid through the opening in the tissue membrane.

43. An apparatus for suturing a tissue membrane, the apparatus comprising:
a tubular body having a proximal portion and a distal portion, the distal portion extendable through an opening in the tissue membrane caused by a catheterization procedure; and

a hollow needle advanceable in a distal direction along the tubular body and through the tissue membrane adjacent the opening in the tissue membrane, wherein the hollow needle carries at least a portion of a length of suture through the tissue membrane as the needle is advanced distally.

44. The apparatus of claim 43 further comprising a suture chamber defined in the proximal portion of the tubular body, the suture chamber holding at least a portion of the length of suture, wherein the needle carries at least a portion of the length of suture from the suture chamber through the tissue membrane.

45. The apparatus of claim 43 further comprising a suture retrieval assembly at the distal portion of the tubular body and deployable to receive the length of suture after the tubular body is extended through the opening in the tissue membrane.

46. The apparatus of claim 43 further comprising a hemostasis seal member on the distal portion of the tubular member, the seal member being openable against outflow of fluid through the opening in the tissue membrane.

47. An apparatus for suturing a tissue membrane, the apparatus comprising:
a tubular body having a proximal portion and a distal portion, the distal portion extendable through an opening in the tissue membrane caused by a catheterization procedure;

a needle advanceable in a distal direction along the tubular body and through the tissue membrane adjacent the opening in the tissue membrane; and
a hemostasis seal member on the distal portion of the tubular member, the seal member being openable against outflow of fluid through the opening in the tissue membrane.

48. The apparatus of claim 47 further comprising a suture chamber defined in the proximal portion of the tubular body, the suture chamber holding a length of suture, wherein the needle carries at least a portion of the length of suture from the suture chamber through the tissue membrane.

49. The apparatus of claim 47 further comprising a suture retrieval assembly at the distal portion of the tubular body and deployable to receive the suture after the tubular body is extended through the opening in the tissue membrane.

50. The apparatus of claim 47 wherein the suture is attached to the needle.

51. The apparatus of claim 47 wherein the needle has an eyelet near its distal tip, the eyelet carrying a doubled-back length of suture.

AI

52. The apparatus of claim 47 wherein the needle is a hollow needle that carries the suture through the center of the hollow needle.--